

REMARKS/ARGUMENTS

Claims 11-12 and 24-25 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. As requested by the Examiner the Applicants have amended the claim to provide that the molecular weight is the number average molecular weight.

Claims 1, 4-6, 9-10, 13-14, 17-23, and 26-27 were rejected under 35 U.S.C 102(e) as being anticipated by Mathauer et al. (U.S. 6,727,318). The Examiner states that

“Mathauer et al. disclose ink jet ink comprising water, humectant, hexadecane, and composite polymer dye particles which comprise polymer and water-insoluble dye wherein the dye is present during the polymerization of the polymer and is present in amount of at least 5%. The water-insoluble dye includes azo, phthalocyanine, oxazine, methane, and metal complex dyes. The polymer is obtained from monomers including crosslinking monomers, styrene, and (meth)acrylate. It is further disclosed that the composite polymer dye particles possess particle size of less than 1000 nm and average particle size of 100-400 nm. There is also disclosed process for making the composite polymer dye particles which comprises preparing dye solution comprising dye and monomer, adding water and hexadecane, adding initiator including peroxide initiators or azo initiators, and then polymerizing. There is further disclosed ink jet printing method comprising providing ink jet printer, loading printer with ink jet recording sheet comprising support having image receiving layer, and then printing the ink onto the sheet (col. 1, lines 5-10, col.2, lines 48-56, col.3, lines 18-19, 25-26, and 27-40, col.4, lines 57-62, col.5, lines 25-31, 61, and 65-67, col.6, lines 28-34, col.7, lines 23-25, col.8, lines 56-65, col.21, lines 53-55, col.23, lines 29-42 and 51-54, col.25, lines 22-26, col.25, lines 45-67, col.27, lines 6-11, col.28, lines 47-52, col.28, lines 65-67, col.33, lines 9-38, col.34, lines 26-54, col.53, line 56-col.55, line 7, col.55, line 33, and col.70, lines 32-34). In light of the above, it is clear that Mathauer et al. anticipate the present claims.”

Applicants respectfully traverse this rejection. Applicants have amended claims 1 and 26 to provide that the polymer which is part of the composite dye particles is water-insoluble. Support for this amendment may be found at page 8, line 15 of the specification. In contrast, the polymers in Mathauer comprise at least 50 % water-soluble monomers, and most preferably at least 90 % water-soluble monomers. Therefore, the resulting polymers would not be water insoluble. This is an important distinction. Polymers that have such a high percentage of water-soluble monomers that are not as useful in forming the

composite dye particles and they may cause many problems. Since only the water-insoluble portion of the polymer will associate with the dye, the more water-soluble the polymer the less it will associate. If the polymer does not associate well with the dye it will not protect the dye as well, nor will it be as stable. Further, water-soluble polymers may cause bridging flocculation (particle aggregation due to polymer chain entanglement) which in turn may cause jetting problems. In contrast, the preferred water-insoluble polymers of the current invention provide excellent colloid stability, ozone stability and good resistance to abrasion. Therefore, not only does Mathauer not anticipate the current invention, it clearly teaches away from the use of a water-insoluble polymer.

Claim 7 was rejected under 35 U.S.C. 103(a) as being unpatentable over Mathauer et al. (U.S. 6,727,318) in view of Moore et al. (U.S. 4,698,651).

Applicants respectfully traverse this rejection.

The Examiner states that

“The difference between Mathauer et al. and the present claimed invention is the requirement in the claims of specific type of dye. Moore et al. disclose the use of arylazoisothiazole dye in order to improve light stability and hue (col. 1, line 65-col.2, line 15). In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use such dye in the ink of Mathauer et al. in order to improve light stability and hue, and thereby arrive at the claimed invention.”

As noted above, Mathauer does not anticipate the current invention as it does not disclose or suggest the use of a water-insoluble polymer in the polymer phase of the composite dye particles. The combination of Moore and Mathauer does nothing to overcome this deficiency. Moore does not disclose or suggest the use of composite dye particles. In fact, Moore does not even relate to ink jet inks. Therefore the combination of Moore and Mathauer does not make the current invention obvious.

Claim 8 was rejected under 35 U.S.C. 103(a) as being unpatentable over Mathauer et al. (U.S. 6,727,318) in view of Evans et al. (U.S. 6,001,161).

Applicants respectfully traverse this rejection.

The Examiner states that

“The difference between Mathauer et al. and the present claimed invention is the requirement in the claims of specific type of dye. Evans et al., which is drawn to ink jet ink, disclose the use of dye which is metal complex of 8-heterocyclcylazo-5-hydroxyquinoline in order to produce ink with outstanding light stability and bright magenta hue (col.2, lines 17-

24). In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use such dye in the ink of Mathauer et al. in order to produce ink with outstanding light stability and bright magenta hue, and thereby arrive at the claimed invention.”

As noted above, Mathauer does not anticipate the current invention as it does not disclose or suggest the use of a water-insoluble polymer in the polymer phase of the composite dye particles. The combination of Evans and Mathauer does nothing to overcome this deficiency. Evans does not disclose or suggest the use of composite dye particles. Further, Evans utilizes water-soluble dyes, rather than water-insoluble dyes. Such dyes would not form the composite dye particles of the invention. Therefore the combination of Mathauer and Evans does not make the current invention obvious.

Claims 11-12 and 24-25 were rejected under 35 U.S.C. 103(a) as being unpatentable over Mathauer et al. (U.S. 6,727,318) in view of Ishizuka et al. (U.S. 2001/0023267). Applicants respectfully traverse this rejection.

The Examiner states that

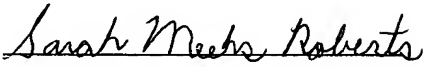
“The difference between Mathauer et al. and the present claimed invention is the requirement in the claims of molecular weight of the polymer in the composite polymer dye particle. Ishizuka et al., which is drawn to ink comprising colored resin, i.e. composite polymer dye particles, disclose the use of polymer which has molecular weight of 1,000-100,000. It is disclosed that if the molecular weight is less than 1,000, it is difficult to obtain stable dispersed product while if the molecular weight is greater than 100,000, solubility into the organic solvent present in the ink deteriorates, viscosity increases, and dispersion is difficult (paragraph 244). In light of the motivation for using polymer with specific molecular weight in the composite polymer dye particles disclosed by Ishizuka et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use polymer with such molecular weight in the composite polymer dye particles of Mathauer et al. in order to produce ink with stable dispersion of composite polymer dye particles, and thereby arrive at the claimed invention.”

Mathauer does not anticipate the current invention as it does not disclose or suggest the use of a co-stabilizer with a water-insoluble polymer. The current claims of the application have been allowed over Ishizuka as it does not suggest or disclose the use of the co-stabilizers of the invention. Ishizuka further relates to the use of dye loaded polymers rather than to the use of polymers which are polymerized in the presence of the dye. Mathauer and Ishizuka relate to the use of different systems of forming colorants and one skilled in the art would not

be motivated to combine them to arrive at the current invention. Therefore the combination of Ishizuka and Mathauer does not make the current invention obvious.

In light of the above-mentioned amendments and remarks,
Applicants respectfully request that the claims as amended be allowed.

Respectfully submitted,



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If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.